

Table of Contents

<u>ILMI Address Registration Problems: %LANE-3-NOREGILMI</u>	1
<u>Document ID: 10450</u>	1
<u>Introduction</u>	1
<u>Prerequisites</u>	1
<u>Requirements</u>	1
<u>Components Used</u>	1
<u>Conventions</u>	2
<u>Associated Error Message</u>	2
<u>Configure</u>	2
<u>Network Diagram</u>	2
<u>Configurations</u>	3
<u>Checking ILMI</u>	3
<u>ILMI Status</u>	3
<u>When ILMI is Disabled on the Switch Interface</u>	4
<u>Access List Configuration Problems or ILMI Community Configured as Read-Only</u>	5
<u>Known Caveats</u>	6
<u>If the Switch Knows the NSAP Address</u>	6
<u>When the NSAP Address Is Configured Statically on the Switch</u>	6
<u>When the NSAP Address Is Registered via ILMI by Another Device</u>	7
<u>Configuration Problems</u>	10
<u>Related Information</u>	11

ILMI Address Registration Problems: %LANE-3-NOREGILMI

Document ID: 10450

Introduction

Prerequisites

- Requirements

- Components Used

- Conventions

Associated Error Message

Configure

- Network Diagram

- Configurations

Checking ILMI

- ILMI Status

- When ILMI is Disabled on the Switch Interface

- Access List Configuration Problems or ILMI Community Configured as Read-Only

- Known Caveats

If the Switch Knows the NSAP Address

- When the NSAP Address Is Configured Statically on the Switch

- When the NSAP Address Is Registered via ILMI by Another Device

Configuration Problems

Related Information

Introduction

This document explains how to troubleshoot Interim Local Management Interface (ILMI) address registration problems on Cisco devices when using LAN emulation (LANE).

The ILMI protocol uses Simple Network Management Protocol (SNMP) format packets across the User-Network Interface (UNI) to access an ILMI Management Information Base (MIB) associated with the link within each node. The ILMI protocol facilitates network-wide auto configuration by allowing adjacent nodes to determine each other's characteristics. Examples of these characteristics are the size of each other's connection space, the type of signaling used (UNI or NNI), type of link (public or private) and hooks for network management autodiscovery.

ILMI is also used for address registration.

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

This document is not restricted to specific software and hardware versions.

Conventions

For more information on document conventions, refer to the Cisco Technical Tips Conventions.

Associated Error Message

Address resolution problems are usually associated with the following error message:

```
%LANE-3-NOREGILMI: [chars] [chars] cannot register [ATM address] with ILMI
```

For example:

```
%LANE-3-NOREGILMI: ATM2/0/0.1 LEC cannot register  
47.00918100000000603E5A4501.00D0069A7C40.01 with ILMI
```

This error message can be reported by one of the following:

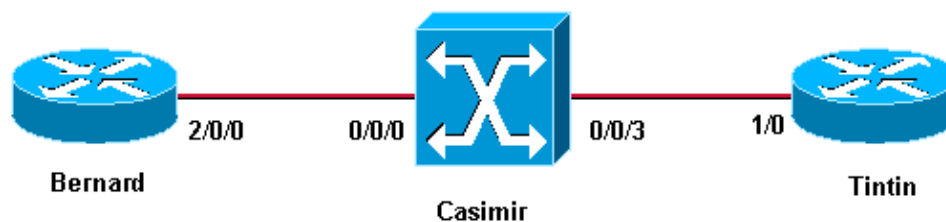
- LAN Emulation Configuration Server (LECS)
- LAN Emulation Server (LES) or broadcast and unknown server (BUS)
- LAN Emulation Client (LEC)

Although this document looks at the address registration problems encountered by a LEC, the explanations are also valid for registration problems with the LECS and LES/BUS.

Configure

Network Diagram

This setup illustrates the problem:



This setup uses:

- Bernard is a Cisco 7500 router running Cisco IOS® software release 12.1(4).
- Casimir is a LightStream 1010 running Cisco IOS software release 12.0(13)W5(19b)
- Tintin is a Cisco 7000 router running Cisco IOS software release 11.2(22)P.

This setup uses LANE, and the LECS and LES/BUS are located on the LightStream 1010.

Note: The configuration used here does not give the best LANE performances; it is simply being used for illustration. For design recommendations regarding LANE services, refer to the LANE Design Recommendations.

Configurations

Both Bernard and Tintin are configured with a LEC:

Bernard
<pre>interface ATM2/0/0 pvc 0/16 ilmi ! pvc 0/5 qsaal ! interface ATM2/0/0.1 multipoint description *** ILMI addr. registr. test *** lane client ethernet ilmi-test</pre>

Tintin
<pre>interface ATM1/0 atm pvc 1 0 5 qsaal atm pvc 2 0 16 ilmi ! interface ATM1/0.1 multipoint description *** ILMI addr. registr. test *** lane client ethernet ilmi-test</pre>

Checking ILMI

ILMI Status

The first thing to check in the case of address registration problems through ILMI is whether the ILMI permanent virtual circuit (PVC) is up using these **show** commands:

- On a router, issue the **show atm vc** command.
- On a LightStream 1010, issue the **show atm vc interface atm x/y/z** command.

```
bernard# show atm vc
```

Interface	VCD / Name	VPI	VCI	Type	Encaps	SC	Peak Kbps	Avg/Min Kbps	Burst Cells	Sts
2/0/0	9	0	5	PVC	SAAL	UBR	149760			UP
2/0/0	1	0	16	PVC	ILMI	UBR	149760			UP

!--- Output suppressed.

```
Casimir# show atm vc interface atm 0/0/0
```

Interface	VPI	VCI	Type	X-Interface	X-VPI	X-VCI	Encap	Status
ATM0/0/0	0	5	PVC	ATM2/0/0	0	47	QSAAL	UP
ATM0/0/0	0	16	PVC	ATM2/0/0	0	35	ILMI	UP

!--- Output suppressed.

If the ILMI PVC is up, then you must check which ILMI state the router and the atm switch are in. Do this by issuing the **show atm ilmi-status** command.

```
bernard# show atm ilmi-status
```

```
Interface : ATM2/0/0 Interface Type : Private UNI (User-side)
ILMI VCC : (0, 16) ILMI Keepalive : Disabled
ILMI State:      UpAndNormal
Peer IP Addr:    10.200.10.12      Peer IF Name:      ATM0/0/0
Peer MaxVPIbits: 8                Peer MaxVCIBits:   14
Active Prefix(s) :
47.0091.8100.0000.0060.3e5a.4501
```

```
Casimir# show atm ilmi-status atm 0/0/0
```

```
Interface : ATM0/0/0 Interface Type : Private UNI (Network-side)
ILMI VCC : (0, 16) ILMI Keepalive : Enabled (5 Sec 4 Retries)
ILMI State:      UpAndNormal
Peer IP Addr:    15.1.1.1          Peer IF Name:      ATM2/0/0
Peer MaxVPIbits: 8                Peer MaxVCIBits:   16
Configured Prefix(s) :
47.0091.8100.0000.0060.3e5a.4501
```

The correct state is **UpAndNormal**. If the router or the LightStream 1010 are not in the proper ILMI state, check if there is a misconfiguration using the instructions given later in this document.

When ILMI is Disabled on the Switch Interface

You can check whether or not ILMI is disabled on the switch interface by issuing these **show** commands:

- **show run interface atm x/y/z**
- **show atm ilmi-status atm z/y/z**

```
Casimir# show run interface atm 0/0/0
Building configuration...
```

```
Current configuration:
!
```

```
interface ATM0/0/0

no ip address
no ip directed-broadcast
logging event subif-link-status
atm ilmi-keepalive
no atm ilmi-enable
```

```
bernard# show atm ilmi-status atm 2/0/0
```

```
Interface : ATM2/0/0 Interface Type : Private UNI (User-side)
ILMI VCC : (0, 16) ILMI Keepalive : Disabled
ILMI State:      UpAndNormal
Peer IP Addr:    0.0.0.0
Peer MaxVPIbits: 8                Peer MaxVCIBits:   14
```

```
bernard# show lane default-atm-addresses interface atm 2/0/0
```

```
LANE Client:      ...000000000002.**
LANE Server:      ...000000000003.**
LANE Bus:         ...000000000004.**
LANE Config Server: ...000000000005.00
note: ** is the subinterface number byte in hex
```

```
Casimir#
```

In this case, as ILMI has been disabled on the interface by issuing the **no atm ilmi-enable** command, the prefix is not sent to the router and hence, no address registration can occur.

Access List Configuration Problems or ILMI Community Configured as Read-Only

Access List configuration problems can occur if one of the workarounds proposed in this security notice is wrongly applied to the LightStream 1010 or the router. If you have added these lines to the switch configuration, ILMI (and PNNI) stop working on the switch:

```
access-list deny any
snmp community ILMI view *ilmi RW
```

This has the following result:

```
bernard# show atm ilmi-st
Interface : ATM2/0/0 Interface Type : Private UNI (User-side)
ILMI VCC : (0, 16) ILMI Keepalive : Disabled
ILMI State: WaitDevType
```

As you can see, the ILMI-status on the router stays in WaitDevType and address registration does not occur.

Adding the following configuration on the router or the switch will also cause ILMI to stay in WaitDevType and thus prevent any address registration:

```
access-list <x> [permit|deny] a.b.c.d
snmp-server community ILMI RO <x>
```

If the router and the switch are in a correct states, then you must check whether cells are being sent and received on the VC 0/16. You can do this issuing the commands described in the introduction of this document. You can verify this on a router by issuing these **show** commands:

- **show atm pvc 0/16**
- **show atm vc vcd**

On a LightStream 1010 or Catalyst 8500 MSR, issue these **show** commands:

- **show atm vc interface atm x/y/z 0 16**
- **show atm vc traffic interface atm x/y/z 0 16**

```
bernard# show atm pvc 0/16
ATM2/0/0: VCD: 1, VPI: 0, VCI: 16
UBR, PeakRate: 149760
AAL5-ILMI, etype:0x0, Flags: 0xC27, VCmode: 0x0
OAM frequency: 0 second(s), OAM retry frequency:
1 second(s), OAM retry frequency: 1 second(s)
OAM up retry count: 3, OAM down retry count: 5
OAM Loopback status: OAM Disabled
OAM VC state: Not Managed
ILMI VC state: Not Managed
InARP DISABLED
Transmit priority 4
InPkts: 255, OutPkts: 309, InBytes: 18842, OutBytes: 22657
InPRoc: 269, OutPRoc: 319, Broadcasts: 0
```

!--- Output suppressed.

```
Casimir# show atm vc traffic interface atm 0/0/0 0 16
Interface          VPI  VCI  Type      rx-cell-cnts  tx-cell-cnts
ATM0/0/0           0    16   PVC              308           316
```

If you see only the sent or received counter incrementing, it may mean that cells are being stuck on the backplane causing ILMI to be stuck. Try issuing a **shut/no shut** command on the interface. If that does not help, contact Cisco Technical Support for further troubleshooting. If both counters are incrementing, then the ILMI PVC is transmitting cells properly.

Known Caveats

There are also some known bugs which can explain why ILMI is not coming up properly. These are Cisco Bug IDs CSCdt47492, CSCdm26756 and CSCdr28332.

To follow the bug ID link below and see detailed bug information, you must be a user and you must be .

The rest of this document assumes that the ILMI PVC is UP and carrying cells and that the ILMI status is correct on all the devices. Then, the possible causes for address registration failures via ILMI are:

- The switch already knows the NSAP address
- Configuration problem

If the Switch Knows the NSAP Address

These are scenarios in which the switch already knows the NSAP address.

When the NSAP Address Is Configured Statically on the Switch

On the router Bernard, you can see this message:

```
1w1d: %LANE-3-NOREGILMI: ATM2/0/0.1 LEC cannot register
47.00918100000000603E5A4501.00D0069A7C40.01 with ILMI
```

When looking on the switch for the NSAP address 47.00918100000000603E5A4501.00D0069A7C40.01, you can see this information:

```
Casimir# show atm route 47.0091.8100.0000.0060.3e5a.4501.00d0.069a.7c40.01
Codes: I - internal prefix, E - exterior prefix
E 47.0091.8100.0000.0060.3e5a.4501.00d0.069a.7c40/152
  Advertised in PTSE ID 3 IG IX 0 by node-index 1
    Node 1: Port ATM0/0/3, by atm-static, 00:00:39, uni scope 15
              adv_trig 0x2, src_mask 0x1, node-index 0, rtaddr_index 1
```

```
Casimir# show atm route
```

```
Codes: P - installing Protocol (S - Static, P - PNNI, R - Routing control),
       T - Type (I - Internal prefix, E - Exterior prefix, SE -
                Summary Exterior prefix, SI - Summary Internal prefix,
                ZE - Suppress Summary Exterior, ZI - Suppress Summary Internal)
```

```

P  T Node/Port      St Lev Prefix
~  ~ ~~~~~
P  I 9      0      UP 0  47.0091.8100.0000.0010.1f2d.6801/104
P SI 1      0      UP 0  47.0091.8100.0000.0060.3e5a.4501/104
R  I 1  ATM0/0/3    UP 0  47.0091.8100.0000.0060.3e5a.4501.0000.0c0e.09e7/152
```

```

R I 1 ATM2/0/0 UP 0 47.0091.8100.0000.0060.3e5a.4501.0060.3e5a.4501/152
R I 1 ATM2/0/0 UP 0 47.0091.8100.0000.0060.3e5a.4501.0060.3e5a.4502/152
R I 1 ATM2/0/0 UP 0 47.0091.8100.0000.0060.3e5a.4501.0060.3e5a.4503/152
R I 1 ATM2/0/0 UP 0 47.0091.8100.0000.0060.3e5a.4501.0060.3e5a.4504/152
R I 1 ATM2/0/0 UP 0 47.0091.8100.0000.0060.3e5a.4501.0060.3e5a.4505/152
S E 1 ATM0/0/3 UP 0 47.0091.8100.0000.0060.3e5a.4501.00d0.069a.7c40/152
R I 1 ATM2/0/0 UP 0 47.0091.8100.0000.0060.3e5a.4501.4000.0c/128

```

```

Casimir# show running-config
Building configuration...

```

```

Current configuration:

```

```

!
! Last configuration change at 12:28:24 UTC Mon Apr 2 2001
! NVRAM config last updated at 12:28:25 UTC Mon Apr 2 2001
!
version 12.0

```

```

!--- Output suppressed.

```

```

atm route 47.0091.8100.0000.0060.3e5a.4501.00d0.069a.7c40... ATM0/0/3

```

As shown above, the NSAP address has been statically configured on the switch and in this case even points to a different interface from the one where it should be located.

When the NSAP Address Is Registered via ILMI by Another Device

To simulate this scenario, Tintin and Bernard are configured with the same MAC address.

Bernard
<pre> interface ATM2/0/0 mac-address 0000.0000.0001 pvc 0/16 ilmi ! pvc 0/5 qsaal </pre>

Tintin
<pre> interface ATM1/0 mac-address 0000.0000.0001 no ip address atm pvc 1 0 5 qsaal atm pvc 2 0 16 ilmi </pre>

Because they are both connected to the same switch, the NSAP address associated to the LECs configured on the sub-interfaces atm 2/0/0.1 and atm 1/0.1 is the same:
47.00918100000000603E5A4501.000000000001.01.

Tintin interface atm 1/0.1 has been brought up before atm 2/0/0.1 on Bernard. Therefore, Tintin is the first one to register the NSAP address 47.00918100000000603E5A4501.000000000001.01 via ILMI. As soon as the interface atm 2/0/0.1 is brought up on Bernard, this message is displayed:

```

1w1d: %LANE-3-NOREGILMI: ATM2/0/0.1 LEC cannot register
47.00918100000000603E5A4501.000000000001.01 with ILMI

```


If you look at Tintin, you can see that Tintin is already using that NSAP address and has registered it on Casimir:

```
Tintin# show lane client
LE Client ATM1/0.1 ELAN name: ilmi-test Admin: up State: operational
Client ID: 2 LEC up for 39 seconds
Join Attempt: 4
HW Address: 0000.0000.0001 Type: ethernet Max Frame Size: 1516
ATM Address: 47.00918100000000603E5A4501.000000000001.01

VCD  rxFrames  txFrames  Type      ATM Address
0      0          0  configure 47.0091810000000000603E5A4501.00603E5A4505.00
14     1          2  direct   47.0091810000000000603E5A4501.00603E5A4503.01
15     1          0  distribute 47.0091810000000000603E5A4501.00603E5A4503.01
16     0          1  send     47.0091810000000000603E5A4501.00603E5A4504.01
17     2          0  forward  47.0091810000000000603E5A4501.00603E5A4504.01
```

If you look at Casimir, you can see that this address has already been registered:

```
Casimir# show atm route 47.00918100000000603E5A4501.000000000001.01
Codes: I - internal prefix, E - exterior prefix
I 47.0091.8100.0000.0060.3e5a.4501.0000.0000.0001/152
    Node 1: Port ATM0/0/3, by routing-control, 00:01:06, uni scope 15
           adv_trig 0x2, src_mask 0x2, node-index 0, rtaddr_index 1

Casimir# show atm route

Codes: P - installing Protocol (S - Static, P - PNNI, R - Routing control),
       T - Type (I - Internal prefix, E - Exterior prefix, SE -
              Summary Exterior prefix, SI - Summary Internal prefix,
              ZE - Suppress Summary Exterior, ZI - Suppress Summary Internal)

P  T Node/Port      St Lev Prefix
~  ~ ~~~~~
P  I 9      0      UP 0 47.0091.8100.0000.0010.1f2d.6801/104
P SI 1      0      UP 0 47.0091.8100.0000.0060.3e5a.4501/104
R  I 1  ATM0/0/3    UP 0 47.0091.8100.0000.0060.3e5a.4501.0000.0000.0001/152
R  I 1  ATM2/0/0    UP 0 47.0091.8100.0000.0060.3e5a.4501.0060.3e5a.4501/152
R  I 1  ATM2/0/0    UP 0 47.0091.8100.0000.0060.3e5a.4501.0060.3e5a.4502/152
R  I 1  ATM2/0/0    UP 0 47.0091.8100.0000.0060.3e5a.4501.0060.3e5a.4503/152
R  I 1  ATM2/0/0    UP 0 47.0091.8100.0000.0060.3e5a.4501.0060.3e5a.4504/152
R  I 1  ATM2/0/0    UP 0 47.0091.8100.0000.0060.3e5a.4501.0060.3e5a.4505/152
S  E 1  ATM0/0/3    UP 0 47.0091.8100.0000.0060.3e5a.4501.00d0.069a.7c40/152
R  I 1  ATM2/0/0    UP 0 47.0091.8100.0000.0060.3e5a.4501.4000.0c/128
```

This means that Bernard is not able to register its address via ILMI, since it is a duplicate. When the **debug atm ilmi atm x/y/z** command is issued on Bernard and Casimir, these debugs can be seen:

Bernard:

!--- Output suppressed.

```
1wld: ILMI(ATM2/0/0): Registration local validation attempt for
47.0091.8100.0000.0060.3e5a.4501.0000.0000.0001.01
1wld: ILMI(ATM2/0/0): Sent Out. Will be added on confirmation
1wld: ILMI(ATM2/0/0):Sending out Request 930
1wld: ILMI(ATM2/0/0):Response received for request 929
1wld: ILMI(ATM2/0/0): Errored response <General Error> Function Type = ilmiReqOther
1wld: ILMI(ATM2/0/0): Errored or no response received
1wld: ILMI(ATM2/0/0): ES database update not done
```

Cisco – ILMI Address Registration Problems: %LANE-3-NOREGILMI

```

1wld: ILMI(ATM2/0/0):Updating ES Database with
7.0091.8100.0000.0060.3e5a.4501.0060.3e5a.4502.00
1wld:   Reg Status :- Delete in progress - False, Add in progress - True
1wld: ILMI(ATM2/0/0):Response received for request 930
1wld: ILMI(ATM2/0/0): Errored response <General Error> Function Type = ilmiReqOther
1wld: ILMI(ATM2/0/0): Errored or no response received
1wld: ILMI(ATM2/0/0): ES database update not done
1wld: ILMI(ATM2/0/0):Updating ES Database with
47.0091.8100.0000.0060.3e5a.4501.0000.0000.0001.01
1wld:   Reg Status :- Delete in progress - False, Add in progress - True

1wld: %LANE-3-NOREGILMI: ATM2/0/0.1 LEC cannot register
47.00918100000000603E5A4501.000000000001.01 with ILMI

```

!--- Output suppressed.

Casimir:

!--- Output suppressed.

```
Apr 2 13:10:06.800: ILMI: Validating address 47.0091.8100.0000.0060.3e5a.4501.0000.0000.00
```

```
Apr 2 13:10:06.800: ILMI: Address rejected by Client identified as pnni(ATM0/0/0)
```

!--- Output suppressed.

Note: The situation described in this section can often be encountered in the following scenario. If LECS services are configured on Cisco devices and other vendor devices at the same time and all these LECS are listening to the well-known address and advertising it, this message can be displayed:

```

1w2d: %LANE-3-NOREGILMI: ATM2/0/0 LECS cannot register
47.00790000000000000000000000.00A03E000001.00 with ILMI

```

As LECS are configured on non-Cisco devices as well as Cisco devices, you cannot use SSRP or Fast-SSRP. The purpose of these redundancy protocols is that one LECS is elected as Master LECS (the others being backup LECS). The master LECS is the only one allowed to advertise the well-known address if it is being used. In this case, since you cannot configure a redundancy protocol, there is no Master LECS election. Hence, all the LECS try to advertise the well-known address, but only one succeeds.

To illustrate this, the configurations have been modified as shown:

Bernard	
lane database test	
name ilmi-test server-atm-address 47.00918100000000603E5A4501.00603E5A4503.01	
!	
interface ATM2/0/0	
no ip address	
no ip route-cache distributed	
no atm ilmi-keepalive	
pvc 0/16 ilmi	
!	
pvc 0/5 qsaal	
!	
lane config fixed-config-atm-address	

Cisco – ILMI Address Registration Problems: %LANE-3-NOREGILMI

```
lane config database test
```

Tintin

```
lane database test

  name ilmi-test server-atm-address 47.009181000000000603E5A4501.00603E5A4503.01
!
interface ATM2/0/0
  no ip address
  no ip directed-broadcast
  logging event subif-link-status
  lane config fixed-config-atm-address
lane config database test
```

With this new configuration, a LECS has been configured on Bernard and Casimir, and no LECS address database has been configured on Casimir. This means that SSRP is not enabled. To illustrate the error message, the Bernard atm 2/0/0 interface is shut down before it is configured, and the Casimir configuration is modified first. In this situation, Casimir advertises the well-known address via ILMI, thus preventing Bernard from doing so. As soon as the Bernard atm 2/0/0 interface is brought up, this message is displayed:

```
1w2d: %LANE-3-NOREGILMI: ATM2/0/0 LECS cannot register
47.0079000000000000000000000000.00A03E000001.00 with ILMI
```

Configuration Problems

Another possible cause of failure of the address registration is a problem with the configuration on the LightStream 1010.

```
interface ATM0/0/0

  no ip address

  no ip directed-broadcast

  logging event subif-link-status

  atm ilmi-keepalive

  no atm address-registration
```

The command above prevents any address registration via ILMI which, in this case, prevents the router from receiving its prefix, and thus also advertising its address to the switch:

```
bernard# show lane default-atm-addresses interface atm 2/0/0
LANE Client:      ...000000000002.**
LANE Server:      ...000000000003.**
LANE Bus:         ...000000000004.**
LANE Config Server: ...000000000005.00
note: ** is the subinterface number byte in hex

bernard# show atm ilmi-status atm 2/0/0

Interface : ATM2/0/0 Interface Type : Private UNI (User-side)
ILMI VCC : (0, 16) ILMI Keepalive : Disabled
ILMI State:      UpAndNormal
Peer IP Addr:    10.200.10.12      Peer IF Name:      ATM0/0/0
Peer MaxVPIbits: 8                Peer MaxVCIBits:   14
```

The router does not receive its prefix and hence no address–registration can occur.

When enabling **debug atm ilmi atm 0/0/0** on the LightStream 1010, this can be seen when the atm 0/0/0 interface is brought up:

!--- Output suppressed.

```
Apr  2 12:42:11.792: ILMI: My Device  type is set to Node (ATM0/0/0)
Apr  2 12:42:11.792: ILMI(ATM0/0/0): From  NodeConfigComplete To  UpAndNormal  <ilmi_proce
Apr  2 12:42:11.792: ILMI(ATM0/0/0): Keep Alive enabled
Apr  2 12:42:11.792: ILMI(ATM0/0/0) Address Registration disabled. Prefix not sent
```

!--- Output suppressed.

The solution is to re–enable **atm address–registration** and do a **shut/no shut** on the atm interface to restart ILMI.

Related Information

- [LANE Design Recommendations](#)
- [SSRP Sample Configuration](#)
- [FSSRP Sample Configuration](#)
- [Configuring LANE](#)
- [Troubleshooting ATM LAN Emulation Networks](#)
- [LANE Technology Support](#)
- [Technical Support – Cisco Systems](#)

All contents are Copyright © 1992–2005 Cisco Systems, Inc. All rights reserved. Important Notices and Privacy Statement.

Updated: May 11, 2005

Document ID: 10450
